fingers. Dielectric layer **236** may isolate electrode **230** from common electrode (Vcom) **234**. During operation, electric fields are produced between electrode **230** and electrode **234**. These fields pass through the liquid crystal material in the display. If desired, display **14** may incorporate capacitive touch sensors that are formed from portions of Vcom electrode **234**. In this type of configuration, optional metal lines such as line **238** may be used to help reduce the resistance of the material used in forming electrode **234** (which may be, for example, a somewhat resistive conducting material such as indium tin oxide).

Capacitive coupling between the routing lines in display **14** can lead to switching losses. As an example, source-drain structure **222** may be coupled to the data line in display **14**. The voltage on this line switches relative to Vcom (electrode **234**) and can lead to power losses. The presence of dielectric layers **232**A and **232**B can help reduce capacitive coupling between the data line and Vcom electrode and thereby reduce power losses. The presence of these dielectric layers can also reduce capacitive coupling between routing lines in display **14** (e.g., capacitive coupling between routing lines and other structures of the first and second metal layers, the first and third metal layers, etc.). Layers **232**A and **232**B may be formed from low-dielectric-constant organic dielectric or other dielectric material. As an example, layers **232**A and **232**B may be acrylic polymers, other polymers, dielectrics of the type sometimes referred to as spin-on-glass, (e.g., spin-on-glass polymers deposited via slit coating tools, etc.), siloxane-based materials, etc.

The foregoing is merely illustrative and various modifications can be made by those skilled in the art without departing from the scope and spirit of the described embodiments. The foregoing embodiments may be implemented individually or in any combination.

What is claimed is:

1. A display pixel circuit in a display pixel in an organic light-emitting diode display, comprising:

a light-emitting diode;

a semiconducting oxide thin-film transistor coupled to the light-emitting diode, wherein the semiconducting oxide thin-film transistor comprises a drive transistor having a gate;

a silicon thin-film transistor;

a capacitor coupled between the gate and the light-emitting diode, wherein the capacitor has first and second electrode layers; and

a layer of metal that is patterned to form the gate and the first electrode layer.

2. The display pixel circuit defined in claim **1** wherein the silicon thin-film transistor has a polysilicon channel and is coupled to the capacitor.

3. The display pixel circuit defined in claim **1**, wherein the silicon thin-film transistor has a gate formed from another portion of the layer of metal.

4. A hybrid thin-film transistor structure, comprising:

a silicon layer for a silicon thin-film transistor;

a semiconducting oxide layer for an oxide transistor;

a layer of metal that is patterned to form a first gate for the silicon thin-film transistor and that is patterned to form a second gate for the oxide transistor;

an additional layer of metal having portions that form source-drain contacts for the silicon thin-film transistor, portions that form source-drain contacts for the oxide thin-film transistor, and portions that form an electrode layer in a capacitor.

5. The hybrid thin-film transistor structure defined in claim **4**, wherein the capacitor has an additional electrode layer that is formed from a portion of the layer of metal.

6. The hybrid thin-film transistor structure defined in claim **4** wherein the capacitor has an additional electrode layer that is formed from a portion of the layer of metal that is patterned to form the first gate.

7. The hybrid thin-film transistor structure defined in claim **6** wherein the silicon layer comprises a polysilicon layer and wherein a portion of the polysilicon layer forms an electrode layer for the capacitor that is shorted to the portions of the additional layer of metal that form the electrode layer in the capacitor.

8. An organic light-emitting diode display, comprising:

a light-emitting diode;

thin-film transistors coupled to the light-emitting diode, wherein the thin-film transistors include at least one semiconducting oxide channel region and at least one silicon channel region; and

a capacitor that has first and second electrodes, wherein the silicon channel region is formed from a portion of a layer of polysilicon, wherein the second electrode is formed from an additional portion of the layer of polysilicon.

9. The organic light-emitting diode display defined in claim **8** wherein the thin-film transistors include a semiconducting oxide thin-film transistor that is formed from the semiconducting oxide channel region and that is coupled to the light-emitting diode.

10. The organic light-emitting diode display defined in claim **8** wherein the thin-film transistors include a silicon thin-film transistor that is formed from the silicon channel region.

11. The organic light-emitting diode display defined in claim **8** wherein the thin-film transistors comprise:

a semiconducting oxide thin-film transistor that is formed from the semiconducting oxide channel region and that is coupled to the light-emitting diode; and

a silicon thin-film transistor that is formed from the silicon channel region.

12. The organic light-emitting diode display defined in claim **11** wherein the semiconducting oxide thin-film transistor comprises a drive transistor having a gate.

13. The organic light-emitting diode display defined in claim **12**, wherein the capacitor is coupled between the gate and the light-emitting diode.

14. The organic light-emitting diode display defined in claim **13** further comprising a layer of metal, wherein the first electrode and the gate are formed from a portion of the layer of metal, and wherein the silicon thin-film transistor has a gate formed from another portion of the layer of metal.

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